

# THE ROCKEFELLER UNIVERSITY

*pro bono humani generis*

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UNIVERSITY PROFESSOR

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Prof. R. E. Smalley  
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Dear Dr. Smalley

Interstellar carbon has been an object of interest (to me) for over 30 years; so I have followed with special interest the delineation of the fullerenes.

This also harks back to a curiously unexamined question: how is "elemental" carbon returned to the geochemical cycle?

One of my postdoc's, Elie Shneour did some work on this some years ago (enclosure). But I viewed these results, with "graphitic" carbon, as inconclusive.

One flaw in the concept of that experiment is the definition of "carbon"! We hardly knew how to think of separable constituents which in low proportion might have given idiosyncratic signals.

Your discovery of C60 allows a much more precise reopening of these questions. (Or do you already have a model of environmental degradation of C60 that would account for its not having accumulated in natural environments?) The ideal reagent would be highly purified fullerene(s) prepared with modest C14 labelling. High intensity labelling is probably gratuitous, and may cause problems with radiochemical damage.

I hope you don't mind my trying to foist this experimental objective on you; but no one is better positioned at least on the chemical side. The "microbiology" is not difficult, and you have plenty of local resources (e.g. my former student Charles Stewart). Or, if necessary I might be able to identify other collaborators, and could consult with you on some details. I've returned to my laboratory since last July -- but we are not the best equipped for this particular study.

In any event I hope I can enlist your interest in thinking about this issue, if you have not already done, and if so, perhaps we could discuss further how best to approach it.

*Yours sincerely,*  
*Joshua Lederberg*

P275; Shneour 1966